REMARKS

Following entry of the above amendments, claims 1-18, 20, and 21 will be pending. Claim 19 has been canceled. Claim 1 has been amended to clarify its distinction over the prior art. Claims 20 and 21 have been added.

The specification has been amended to separate two paragraphs that were inadvertently joined together as paragraph [0014]. No change has been made to the language of the specification.

Prior Art Rejections

Claims 1-18 stand rejected under 35 USC 103(a) as obvious over Jain, U.S. Patent No. 6,870,554 ("Jain"), in view of Mei et al., U.S. Patent No. 6,379,867 ("Mei"), further in view of Koch et al., U.S. Patent No. 6,195,201 ("Koch") or Ueno, U.S. Patent No. 6,243,126 ("Ueno"). Withdrawal of the rejections is respectfully requested for at least the following reasons.

Jain discloses a maskless imaging system that includes a spatial light modulator (SLM) 5 and a compensator 6. The SLM 5 has plural digital micromirror devices (DMDs), each of which includes 800,000 micromirrors. Col. 3, lines 47-55. Jain emphasizes the planarity of the SLM 5 and the compensator 6. Col. 4, lines 60-67; Fig. 5. Light from a light source 1 is directed by a steering mirror 4 onto the SLM 5, and from there to the compensator 6 and eventually to a substrate 9. Jain's system does not utilize a mask or reticle, and no mention of a mask or reticle is made in Jain. Jain does not disclose using the planar DMDs of the SLM 5 to condense light. Jain does not disclose using the SLM 5 to alter light characteristics.

Mei also discloses a maskless imaging system. In Mei's system, a light valve 50, such as a DMD, includes a number of reflective pixels 52. The pixels 52 can each be positioned to either reflect incoming light to a lens system 40, or to divert the incoming light away from the lens system 40. Col. 6, lines 49-63; Fig. 5. Mei's system does not

utilize masks or reticles, and is specifically touted as avoiding alleged disadvantages in the use reflective masks or reticles.

Koch discloses a condenser 10 that includes a first fly's eye mirror array 16 and a second fly's eye mirror array 18 to redirect light from a source 12. Koch does not disclose re-configuring the mirror arrays 16 and 18 between lithography operations, to alter light characteristics of light emerging from the condenser 10.

Ueno discloses an image forming apparatus for use in an electronic copying machine. Ueno discloses use of a mirror array 54 as the condenser of an optical unit 50. Ueno does not disclose use or suitability for use of a mirror array as part of a lithographic method.

Claim 1 as amended recites a lithography method that includes, *inter alia*, performing a first patterning of a first target; re-configuring a reflective condenser from a first configuration to a second configuration, wherein the re-configuring results in altering of light characteristics of light exiting the reflective condenser; and performing a second patterning of a second target. Jain and Mei are both maskless systems that do not utilize condensers or the recited reticles. Further, neither Jain nor Mei suggests use of their mirror arrays as condensers. There is no indication from either Jain or Mei that their DMDs would function as condensers. In order to meet the recited features of claim 1, the maskless systems of Jain and Mei would have to be wholly transformed into systems utilizing masks or reticles, with the DMDs transformed into condensers, and with re-configuring of the "condensers" introduced, all with nary a suggestion from either Jain or Mei of the possibility or practicality of such wholesale modifications. To the extent that Jain and Mei show cognizance of mask-based lithography, it is to teach *away* from using such systems. *See* Mei, col. 1, line 10 – col. 2, line 32.

Although Koch does disclose use of mirror arrays 16 and 18 as part of a condenser 10, Koch does not teach or suggest re-configuring a condenser between patterning operations, to alter light characteristics of light exiting the condenser. The

specification of the present application, in paragraphs [0029] and [0030], discusses alterations in light characteristics that are achievable using the re-configuring that is part of the claimed method, and discusses how these alterations in light characteristics may be advantageously employed within a lithography process. Koch does not teach and does not suggest making alterations between patterning operations in order to achieve altered light characteristics. Instead, Koch appears to put forward a single desirable light pattern, an annular pattern, as the desirable light configuration for all situations. Koch does not teach and does not suggest re-configuring to achieve different light characteristics, for instance to achieve different effects or for use with different types of features.

Ueno does not involve lithographic processes at all, and does not teach or suggest what the other references lack, as discussed above.

None of the applied references, individually or in combination, teach or suggest the method of claim 1. Therefore claims 1-14 are patentable over Jain, Mei, Koch, and Ueno, either individually or in combination.

Claim 15 recites a method of lithography that includes re-configuring, between lithography operations, reflective facets of a multi-faceted mirror that is part of a reflective condenser, wherein the re-configuring results in altering of light characteristics of light exiting the reflective condenser to strike a reflective reticle. As is clear from the above discussion, none of the applied references teach or suggest re-configuring a mirror between lithography operations to alter light characteristics. Therefore claims 15-18 are patentable over Jain, Mei, Koch, and Ueno, individually or in combination.

Many of the dependent claims are patentable over the applied references for the additional reasons that the references do not teach or suggest their additional recited features. Claim 5 recites piezoelectric pushers used to configure facets of a mirror. Mei is the only applied reference that mentions piezoelectric material, and then only in the context of a vibrating structure 100 that is "connected to two piezo electric vibrators

102," col. 10, lines 2-3. The structure 100 does not have a mirror, and nothing in Mei (or the other applied references) suggests using piezoelectric pushers to configure facets of a multi-facet mirror. Claims 6 and 16 recite re-configuring to change a degree of partial coherence of light, and claims 7 and 17 recite re-configuring to change a light distribution – none of the applied references teach or suggest these alterations of light characteristics. Claim 10 recites that the reticle portions to which light is directed before and after the re-configuring, are both portions of the same reticle. None of the applied references teach or suggest re-configuring a condenser between operations on different portions of the same reticle. Claim 12 recites that the target portions that are selectively exposed before and after the re-configuring, are both wafer portions of the same wafer. None of the applied references teach or suggest re-configuring a condenser between operations on different portions of the same wafer. Therefore claims 5-7, 10, 12, 16, and 17 are patentable over the applied references, individually or in combination, for additional reasons.

Newly-Added Claims

Claims 20 and 21 depend indirectly upon claim 15, and are patentable for at least the reasons given above for the patentability of claim 15. In addition, it is believed that claims 20 and 21 recite respective additional features not taught or suggested by any of the applied references.

Conclusion

For at least the foregoing reasons, withdrawal of the rejections of the claims is respectfully requested, in which event this application would be in condition for allowance. Should the Examiner believe that a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

No fee is believed to be due with the filing of this paper. In the event any fees are due in connection with the filing of this paper, the Commissioner is authorized to charge those fees to Deposit Account No. 18-0988 (Charge No. AMDSPH1582US).

Respectfully submitted,
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